

LIBRARY  
BUREAU OF THE CENSUS



census

Ref

HD

9724

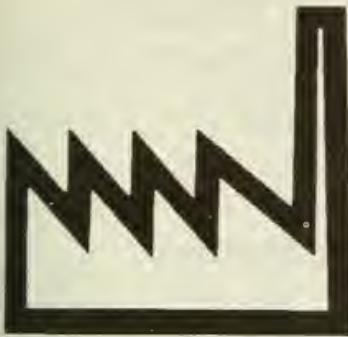
.452X

19876

nos. 33A-

39D





## PRELIMINARY REPORT INDUSTRY SERIES

# 1987 Census of Manufactures

MC87-I-34E(P)  
Issued March 1989

### ORDNANCE AND ACCESSORIES, N.E.C.

Industries 3482, 3483, 3484, and 3489

#### INTRODUCTION

This report presents preliminary statistics from the 1987 Census of Manufactures for those establishments classified in the industries listed above. These data will be superseded by a more comprehensive final paperbound report. The method of data collection and use of administrative data are discussed in detail in the appendix.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The definitions of these industries are the same as those used in the 1987 Standard Industrial Classification (SIC) Manual.<sup>1</sup>

#### INDUSTRY 3482, SMALL ARMS AMMUNITION

In the 1987 Census of Manufactures, Industry 3482, Small Arms Ammunition, had employment of 8.9 thousand. The employment figure was 12 percent below the 10.1 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was \$882.0 million.

The cost of materials and services used by establishments in this industry amounted to \$241.1 million in 1987. Data on specific materials consumed appear in table 3.

<sup>1</sup>Standard Industrial Classification Manual: 1987. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

Address inquiries to Bureau of the Census, Industry Division, Washington, DC 20233, or call Kim Austin (301) 763-7304.



U.S. Department of Commerce  
BUREAU OF THE CENSUS

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

**BUREAU OF THE CENSUS  
LIBRARY**

## INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.

In the 1987 Census of Manufactures, Industry 3489, Ordnance and Accessories, N.E.C., had employment of 23.9 thousand. The employment figure was 13 percent below the 27.5 thousand reported in 1982. Compared with 1986, employment in 1987 decreased 11 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The total value of shipments for establishments classified in this industry was \$1.7 billion.

The cost of materials and services used by establishments in this industry amounted to \$218.2 million in 1987. Data on specific materials consumed appear in table 3.

## ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in the tables in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (NC) Not comparable.
- (S) Withheld because estimate did not meet publication standards on the basis of either the

(X)	response rate or a consistency review.
(Z)	Not applicable.
do	Less than half the unit shown.
n.e.c.	Ditto.
n.s.k.	Not elsewhere classified.
pt.	Not specified by kind.
r	Part.
SIC	Revised.
	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

## CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census/ASM		
Durables	Kenneth Hansen	(301) 763-7304
Nondurables	Michael Zampogna	(301) 763-2510
Current Industrial Reports		
Durables	Malcolm Bernhardt	(301) 763-2518
Nondurables	Thomas Flood	(301) 763-5911
Import/Export Publications	Foreign Trade Division	(301) 763-5140
Industry Analysis and Forecasts	International Trade Administration	(202) 377-4356

Table 1. Historical Statistics for the Industry: 1987 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix.]

Year <sup>1</sup>	Com- panies <sup>2</sup> (no.)	All establishments <sup>3</sup>		All employees		Production workers			Value added by manufac- ture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expendi- tures (million dollars)	End-of- year inven- tories <sup>4</sup> (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Speci- aliza- tion (per- cent)	Cover- age (per- cent)
<b>INDUSTRY 3482, SMALL ARMS AMMUNITION</b>															
1987 Census	(NA)	77	17	8.9	241.8	6.8	14.3	167.1	621.2	241.1	882.0	17.4	145.9	(NA)	(NA)
1986 ASM	(NA)	(NA)	(NA)	8.4	222.7	6.8	13.4	163.6	604.2	303.0	918.7	34.3	244.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.6	252.4	7.7	14.9	174.3	624.1	323.6	917.5	28.9	267.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.8	258.6	7.0	13.9	159.8	561.7	261.7	811.4	32.9	233.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.0	238.4	7.1	14.3	150.4	581.1	250.7	837.6	25.8	193.6	(NA)	(NA)
1982 Census	59	66	19	10.1	221.6	7.4	14.1	142.7	518.4	265.6	799.8	23.3	210.5	96	85
1981 ASM	(NA)	(NA)	(NA)	9.7	198.9	7.3	14.8	134.1	453.7	283.3	720.6	21.8	153.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.5	173.1	7.1	14.2	116.3	343.0	268.6	602.3	17.5	133.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.1	163.5	7.6	15.2	111.8	357.3	240.4	553.9	18.1	128.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.2	150.2	7.7	15.2	102.1	295.0	207.0	496.8	14.8	124.2	(NA)	(NA)
1977 Census	59	65	16	10.3	138.1	7.7	15.4	95.3	247.5	183.0	436.2	42.9	117.6	(NA)	90
1976 ASM	(NA)	(NA)	(NA)	11.3	141.5	8.7	17.6	100.0	257.6	169.2	418.5	11.3	122.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	12.1	141.5	9.3	19.1	101.4	268.4	183.0	442.0	9.7	110.9	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	12.0	131.1	9.5	19.9	96.4	243.8	166.5	384.7	10.4	116.5	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	13.0	125.8	9.7	19.9	89.3	233.4	138.4	372.5	8.2	94.5	(NA)	(NA)
1972 Census	57	62	25	13.9	129.3	10.4	21.0	88.3	228.1	141.9	366.7	9.2	92.2	(NA)	97
<b>INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.</b>															
1987 Census	(NA)	85	64	41.6	1 075.1	25.9	50.4	519.1	2 541.4	1 616.0	3 982.5	77.0	854.1	(NA)	(NA)
1986 ASM	(NA)	(NA)	(NA)	34.8	849.3	22.7	44.0	449.8	2 052.0	1 185.4	3 204.6	56.6	547.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	31.7	749.8	20.9	39.6	411.7	1 680.5	1 153.7	2 754.2	50.8	418.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.8	640.5	18.1	34.0	352.0	1 499.4	822.4	2 249.8	74.0	186.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.9	565.9	17.3	33.6	312.9	1 340.5	688.6	2 014.0	32.5	110.5	(NA)	(NA)
1982 Census	63	74	53	24.4	497.5	15.9	29.1	265.0	1 125.0	625.2	1 757.1	56.2	108.6	82	76
1981 ASM	(NA)	(NA)	(NA)	21.1	384.8	12.8	23.8	194.4	788.1	431.2	1 199.4	44.6	93.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	21.8	370.2	13.7	25.6	193.3	733.2	475.4	1 210.7	16.7	82.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.5	334.4	14.7	26.5	172.1	651.3	417.0	1 055.7	13.1	94.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	21.3	301.6	13.7	27.7	163.6	556.6	335.2	873.7	10.2	78.7	(NA)	(NA)
1977 Census	68	81	49	20.5	271.1	13.6	25.8	149.2	482.6	283.6	775.0	10.4	58.3	(NA)	76
1976 ASM	(NA)	(NA)	(NA)	23.2	294.6	12.9	25.3	144.3	555.1	358.2	1 358.9	12.4	65.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	30.5	351.2	18.4	35.9	181.0	564.8	399.8	1 455.7	13.3	84.8	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	43.7	437.8	28.0	55.1	250.9	714.4	484.7	1 205.8	19.5	135.5	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	56.2	522.7	37.8	75.7	316.1	840.6	636.7	1 006.7	30.1	147.3	(NA)	(NA)
1972 Census	77	94	76	54.9	479.1	36.8	73.2	277.3	719.4	646.1	922.2	23.6	131.3	(NA)	84
<b>INDUSTRY 3484, SMALL ARMS</b>															
1987 Census	(NA)	145	43	13.2	335.7	9.5	19.4	208.5	752.4	337.3	1 089.9	26.5	273.8	(NA)	(NA)
1986 ASM	(NA)	(NA)	(NA)	12.3	308.9	8.5	17.6	182.1	711.3	298.4	1 030.8	32.3	247.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.8	325.4	10.1	20.2	198.9	720.2	337.2	1 085.3	29.6	279.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.3	326.0	10.6	21.4	203.8	763.0	290.4	1 063.0	28.5	298.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.4	296.5	10.4	19.6	179.9	678.3	235.3	938.8	32.4	304.7	(NA)	(NA)
1982 Census	138	144	44	17.4	338.2	13.0	25.0	210.3	715.7	339.9	1 032.1	34.3	345.8	90	99
1981 ASM	(NA)	(NA)	(NA)	19.7	367.6	15.3	31.0	241.1	742.1	398.3	1 125.6	44.5	254.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.5	335.4	15.3	31.6	223.7	680.9	355.1	1 004.1	41.6	237.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.0	285.0	14.4	30.0	192.2	607.6	348.3	945.6	35.0	189.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	19.2	268.8	14.7	29.7	180.9	558.2	314.5	875.1	37.2	188.0	(NA)	(NA)
1977 Census	105	112	46	17.5	237.8	13.1	27.1	157.3	481.5	286.7	754.9	20.5	166.7	(NA)	99
1976 ASM	(NA)	(NA)	(NA)	18.9	232.9	14.0	28.6	156.2	527.0	281.7	800.6	21.5	165.7	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	18.6	219.5	14.0	28.2	144.2	429.2	210.9	627.1	18.5	157.0	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	17.7	184.7	12.7	27.2	123.9	364.3	172.5	520.8	13.9	125.8	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	16.7	163.1	12.2	25.6	109.4	314.7	139.1	448.9	10.9	111.4	(NA)	(NA)
1972 Census	75	82	41	16.1	152.1	11.5	23.1	100.5	278.6	122.1	393.5	11.3	96.4	(NA)	98
<b>INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.</b>															
1987 Census	(NA)	58	33	23.9	805.0	12.1	23.9	363.9	1 425.2	218.2	1 677.7	49.9	235.3	(NA)	(NA)
1986 ASM	(NA)	(NA)	(NA)	26.9	839.5	13.7	26.5	371.7	1 409.9	356.4	1 625.9	32.2	346.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	27.3	811.4	14.6	27.5	373.8	1 512.8	296.2	1 790.5	28.9	189.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.7	796.0	14.7	28.7	379.2	1 478.8	401.9	1 925.0	25.4	277.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.7	716.2	14.3	27.7	343.6	1 361.9	298.4	1 575.8	17.3	293.7	(NA)	(NA)
1982 Census	65	65	39	27.5	722.4	14.3	27.1	323.1	1 082.4	337.7	1 403.8	24.6	222.5	86	64
1981 ASM	(NA)	(NA)	(NA)	29.6	665.6	16.6	31.5	323.0	1 099.2	337.8	1 404.5	18.6	199.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.6	566.6	15.9	30.1	279.7	954.6	307.3	1 283.1	13.3	172.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	26.9	492.1	15.6	29.5	245.4	810.7	261.4	1 077.5	11.7	188.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.3	423.9	14.8	27.5	207.3	658.0	260.2	890.9	22.7	193.5	(NA)	(NA)
1977 Census	89	89	41	23.6	367.7	13.7	25.8	173.3	559.2	232.4	733.8	10.1	176.2	(NA)	68
1976 ASM	(NA)	(NA)	(NA)	21.3	306.5	12.2	22.7	140.5	465.8	163.9	570.0	7.0	111.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	20.4	281.5	12.3	23.2	131.9	385.3	144.2	529.6	4.3	57.5	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	23.6	279.2	14.1	26.1	136.0	392.5	127.0	486.3	4.7	65.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	25.7	269.7	15.2	29.2	135.7	394.5	150.5	536.0	7.2	48.2	(NA)	(NA)
1972 Census	75	76	36	24.6	254.8	14.5	27.5	124.8	356.6	129.0	469.5	9.3	30.1	(NA)	62

Note: Establishments of single unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. Data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were estimated based on administrative-record information from other agencies in conjunction with industry averages. These establishments accounted for the following percent of total value of shipments: SIC 3482, 1%; SIC 3483, 1%; SIC 3484, 4%; and SIC 3489, 1%.

<sup>1</sup>In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the Industry chapter.

<sup>2</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>3</sup>Includes establishments with payroll at any time during year.

<sup>4</sup>Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
3482- --	<b>SMALL ARMS AMMUNITION</b>						
	Total	(NA)	(X)	692.7	(NA)	(X)	698.5
34820 --	Small arms ammunition, 30 mm or less (or 1.18 inches or less) for small firearms (rifles, shotguns, and sidearms):						
34820 25	Cartridges:						
34820 25	Rimfire rifle/pistol	4	2 693.0	52.6	5	2 693.4	57.0
34820 35	Centerfire rifle	6	284.3	83.5	5	225.7	54.7
34820 45	Centerfire pistols (including cartridges interchangeable between rifles and pistols)	9	725.4	93.5	8	495.3	70.2
34820 55	Shotgun shells	3	884.8	150.7	3	869.3	144.2
34820 61	Ammunition components:						
34820 61	Primers	4	1 988.1	21.8	4	**1 818.2	16.3
34820 69	All other (including wads, shot cases (primed or unprimed), bullets, bullet jackets and casings, etc.)	12	(X)	68.2	10	(X)	66.5
34820 98	Other ammunition products (including industrial shells and cartridges, air gun ammunition, percussion caps, etc.)	15	(X)	209.8	20	(X)	282.6
34820 00	Small arms ammunition, 30 mm or less, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	.2	(NA)	(X)	.1
34820 02	Small arms ammunition, 30 mm or less, n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	12.3	(NA)	(X)	7.0
3483- --	<b>AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.</b>						
	Total	(NA)	(X)	2 900.5	(NA)	(X)	1 359.0
34831 --	Artillery ammunition, more than 30 mm (or more than 1.18 inches):						
34831 11	Complete rounds, loaded	7	(X)	1 180.6	(NA)	(X)	678.8
34831 35	Steel cases only	10	(D)	(D)	5	(S)	151.6
34831 51	Projectile metal parts	10	(S)	242.7	5	*5.1	77.1
34831 71	Other components, including primers, fuses, boosters, and nonsteel cases	17	(X)	247.0	19	(X)	267.9
34831 81	Receipts for ammunition loading and assembly, more than 30 mm (or more than 1.18 inches)	(NA)	(X)	(D)	2	(X)	182.2
34831 00	Artillery ammunition, more than 30 mm, n.s.k.	(NA)	(X)	(NA)	(X)	(X)	-
34833 --	Ammunition, except for small arms, n.e.c.						
34833 11	Bombs, depth charges, mines, torpedoes, etc., and parts	27	(X)	1 716.7	(NA)	(X)	674.2
34833 31	Rockets (other than guided missiles) and parts	18	(X)	1 318.5	27	(X)	586.4
34833 00	Ammunition, except for small arms, n.e.c., n.s.k.	(NA)	(X)	398.2	11	(X)	87.8
34830 --	Ammunition, except for small arms, n.e.c., n.s.k.						
34830 00	Ammunition, except for small arms, n.e.c., n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	3.1	(NA)	(X)	6.0
34830 02	Ammunition, except for small arms, n.e.c., n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	.4	(NA)	(X)	3.9
34830 02	Ammunition, except for small arms, n.e.c., n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	2.7	(NA)	(X)	2.1
3484- --	<b>SMALL ARMS</b>						
	Total	(NA)	(X)	1 096.3	(NA)	(X)	896.1
34841 --	Machine guns, 30 mm or less (or 1.18 inches or less):						
34841 00	Machine guns, 30 mm or less (or 1.18 inches or less)	6	(D)	( <sup>3</sup> )	4	(D)	( <sup>3</sup> )
34842 --	Small arms, 30 mm or less (or 1.18 inches or less):						
	Pistols and revolvers:						
34842 11	Centerfire:						
34842 11	Overall length 6 inches or less	7	923	168.0	7	1 971	261.2
34842 13	All other, including units with interchangeable barrels	8	237	47.7			
34842 15	Rimfire:						
34842 15	Overall length 6 inches or less	8	152	15.5	8	433	27.4
34842 17	All other, including units with interchangeable barrels	do			6	61	8.6
34842 21	Rifles:						
34842 21	Centerfire:						
34842 23	Semi-automatic	8	149	44.9	4	284	56.9
34842 23	Bolt repeater	4	342	76.1	8	291	52.5
34842 25	Lever repeater	do			5	(S)	284
34842 27	All other	do				4	45.4
34842 51	Rimfire:						
34842 51	Semi-automatic	do			8	462	31.8
34842 53	All other repeating	do			4	143	15.1
34842 56	Single shot	do			3	140	9.0
34842 67	Shotguns:						
34842 67	Single barrel:						
34842 67	Ropepeating	5	497	127.7	6	551	88.8
34842 63	Single shot	do			4	303	25.8
34842 64	Doublo barrel, including over and under type	5	176	14.0			
34842 73	Other small firearms, 30 mm or less (including combination rifle-shotguns)	3	(X)	3225.2	13	(X)	3191.4
34842 81	Parts and attachments for small firearms	26	(X)	263.4	23	(X)	64.9
34842 00	Small arms, 30 mm or less (or 1.18 inches or less), n.s.k.	(NA)	(X)	1.2	(NA)	(X)	.5
34840 --	Small arms, 30 mm or less, n.s.k.						
34840 00	Small arms, 30 mm or less, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	42.1	(NA)	(X)	16.7
34840 02	Small arms, 30 mm or less, n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	1.4	(NA)	(X)	3.0
34840 02	Small arms, 30 mm or less, n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	40.7	(NA)	(X)	13.7

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

(Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.)

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
3489- --	<b>ORDNANCE AND ACCESSORIES, N.E.C.</b>						
	Total	(NA)	(X)	789.0	(NA)	(X)	1 018.0
34891 --	Guns, howitzers, mortars, and related equipment, more than 30 mm (or more than 1.18 inches)	(NA)	(X)	158.9	(NA)	(X)	138.9
34891 21	Guns, howitzers, and mortars, assembled and recoilless rifles	9	(X)	134.9	2	(X)	109.4
34891 51	Turrets (except aircraft turrets and aircraft turret drives), mounts and carriages (except self-propelled)						
34891 71	Parts and other related equipment for heavy weapons	16	(X)	21.8	12	(X)	28.8
34891 00	Guns, howitzers, mortars, and related equipment, n.s.k.	(NA)	(X)	.5	(NA)	(X)	.7
34892 --	Ordnance and accessories, n.e.c.:						
34892 00	Ordnance and accessories, n.e.c., such as rocket projectors, line throwing guns, flame throwers, torpedo tubes, etc., and their parts	60	(X)	800.8	71	(X)	870.8
34890 --	Ordnance and accessories, n.e.c., n.s.k.	(NA)	(X)	11.5	(NA)	(X)	6.2
34890 00	Ordnance and accessories, n.e.c., n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	.8	(NA)	(X)	3.0
34890 02	Ordnance and accessories, n.e.c., n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	10.7	(N)	(X)	3.2

Note: In 1987 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

<sup>1</sup>Data reported by all producers, not just those with shipments of \$100,000 or more.

<sup>2</sup>For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: \* 10 to 19 percent estimated; \*\* 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

<sup>3</sup>For 1987 and 1982, product code 34841 00 was included in product code 34842 73.

Table 3. Materials Consumed by Kind: 1987 and 1982

(Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text.)

1987 material code	Material	1987		1982		
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)	
<b>INDUSTRY 3482, SMALL ARMS AMMUNITION</b>						
<b>Materials, parts, containers, and supplies</b>						
331001	Mil shapes and forms, except castings:					
331020	Carbon steel	1,000 s tons	(X)	213.2	(X)	
331031	Alloy steel, except stainless	do	(S)	18.7	(NA)	
335105	Stainless steel	do			(NA)	
335007	Copper and copper-base alloy	mil lb	19.1	23.0	(NA)	
289900	Aluminum and aluminum-base alloy	do	(S)	5.8	(S)	
338915	Foundry chemicals, metal treating compounds, and plating compounds	mil lb	(X)	(?)	5.5	
	Metal powders	mil lb	(D)	(?)	7.2	
Casting (rough and semifinished):						
332011	Iron (gray and malleable)	1,000 s tons	-	-	(D)	
332045	Steel	do	-	-	(D)	
336005	Aluminum and aluminum-base alloy	mil lb	(D)	(?)	(D)	
289217	Smokeless powder	do	(S)	33.1	(D)	
345001	Bolts, nuts, screws, rivets, and screw machine products	mil bd ft	(X)	(?)	9.8	
242101	Rough and dressed lumber	mil bd ft	(D)	(?)	(NA)	
349940	Fabricated metal products		(X)	(D)	(NA)	
265001	Paperboard containers, boxes, and corrugated paperboard	1,000 s tons	(S)	13.4	(NA)	
308006	Fabricated plastics products, except gaskets		(X)	(D)	(NA)	
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes	mil lb	9.1	4.4	(NA)	
970099	All other materials and components, parts, containers, and supplies		(X)	74.3	12.2	
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>		(X)	3.4	8.7	

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
	<b>INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.</b>				
	Materials, parts, containers, and supplies	(X)	1 502.6	(X)	533.5
	Mill shapes and forms, except castings:				
331001	Carbon steel	1,000 s tons	60.4	84.0	36.8
331020	Alloy steel, except stainless	do	16.8	100.5	61.5
331031	Stainless steel	do	1.2	(S)	11.8
335105	Copper and copper-base alloy	mil lb	34.7	(S)	3.7
335007	Aluminum and aluminum-base alloy	do	53.2	48.7	34.6
289900	Foundry chemicals, metal treating compounds, and plating compounds				
339915	Metal powders	mil lb	(X) (D)	(NA) (D)	(NA) (D)
	Casting (rough and semifinished):				
332011	Iron (gray and malleable)	1,000 s tons	11.9	34.4	(D)
332045	Steel	do	(S)	(D)	(D)
336005	Aluminum and aluminum-base alloy	mil lb	26.3	(S)	2.2
	Forgings:				
346200	Iron and steel forgings	1,000 s tons	(S)	15.2	(D)
346310	Aluminum and aluminum-base alloy forgings	mil lb	*6.4	22.3	22.1
289217	Smokeless powder	do	(S)	82.9	(D)
	Bearings, including mounted and unmounted:				
356218	Ball		(X)	6	(D)
356201	Roller		(X)	(D)	(D)
345001	Bolts, nuts, screws, rivets, and screw machine products		(X)	55.3	(NA)
242101	Rough and dressed lumber	mil bd ft	(D)	(D)	(*)
349940	Fabricated metal products		(X)	271.1	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	1,000 s tons	(S)	5.3	4.4
308006	Fabricated plastics products, except gaskets	mil lb	(X)	16.1	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes	mil lb	(S)	4.2	(D)
970099	All other materials and components, parts, containers, and supplies		(X)	769.0	(X)
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>		(X)	1.9	343.6 2.8
	<b>INDUSTRY 3484, SMALL ARMS</b>				
	Materials, parts, containers, and supplies	(X)	276.2	(X)	301.5
	Mill shapes and forms, except castings:				
331001	Carbon steel	1,000 s tons	23.6	32.0	26.3
331020	Alloy steel, except stainless	do	54.1	8.7	10.8
331031	Stainless steel	do	—	(D)	(D)
335105	Copper and copper-base alloy	mil lb	(D)	(D)	(D)
335007	Aluminum and aluminum-base alloy	do	(S)	—	17.5
289900	Foundry chemicals, metal treating compounds, and plating compounds				
339915	Metal powders	mil lb	(X) (D)	(NA) (D)	(NA) (D)
	Casting (rough and semifinished):				
332011	Iron (gray and malleable)	1,000 s tons	.5	15.2	*.6
332045	Steel	do	(D)	(S)	1.7
336005	Aluminum and aluminum-base alloy	mil lb	(S)	(S)	29.1
	Forgings:				
346200	Iron and steel	1,000 s tons	*2.5	5.1	**5.8
346310	Aluminum and aluminum-base alloy	mil lb	(D)	(S)	(D)
	Bearings, including mounted and unmounted:				
356218	Ball		(X)	(S)	(D)
356201	Roller		(X)	(X)	(D)
345001	Bolts, nuts, screws, rivets, and screw machine products		(X)	15.4	(NA)
242101	Rough and dressed lumber	mil bd ft	*1.6	15.4	(S)
349940	Fabricated metal products		(X)	80.2	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	1,000 s tons	(S)	2.9	(S)
308006	Fabricated plastics products, except gaskets	mil lb	(X)	(S)	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes	mil lb	.2	.4	(D)
970099	All other materials and components, parts, containers, and supplies		(X)	576.0	(X)
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>		(X)	11.4	175.3 8.1
	<b>INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.</b>				
	Materials, parts, containers, and supplies	(X)	148.5	(X)	239.2
	Mill shapes and forms, except castings:				
331001	Carbon steel	1,000 s tons			
331020	Alloy steel, except stainless	do	*11.7		
331031	Stainless steel	do			
335105	Copper and copper-base alloy	mil lb	**4.4		
335007	Aluminum and aluminum-base alloy	do	4.6		
289900	Foundry chemicals, metal treating compounds, and plating compounds				
339915	Metal powders	mil lb	(X) (D)	(NA) —	(NA) —
	Casting (rough and semifinished):				
332011	Iron (gray and malleable)	1,000 s tons	(S)	.1	(D)
332045	Steel	do	(S)	.8	2.9
336005	Aluminum and aluminum-base alloy	mil lb	(S)	2.3	2.0
	Forgings:				
346200	Iron and steel	1,000 s tons	(D)	(S)	4.8
346310	Aluminum and aluminum-base alloy	mil lb	(S)	2.6	1.1

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.—Con.</b>					
289217	Smokeless powder do	—	—	(D)	(D)
356218	Bearings, including mounted and unmounted:				
356201	Ball	(X)	1.0	(X)	(?)
345001	Roller			(X)	(?)
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	2.8	(NA)	(NA)
242101	Rough and dressed lumber	(D)	(?)	(D)	(?)
349940	Fabricated metal products	(X)	6.8	(NA)	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard 1,000 s tons	(X)	1.0	(D)	(?)
308006	Fabricated plastics products, except gaskets	(X)	1.7	(NA)	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes	mil lb	(D)	(?)	(?)
970099	All other materials and components, parts, containers, and supplies		(X)	105.9	(X)
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>		(X)	1.7	179.8 2.7

<sup>1</sup>For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: \* 10 to 19 percent estimated; \*\* 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

<sup>2</sup>Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

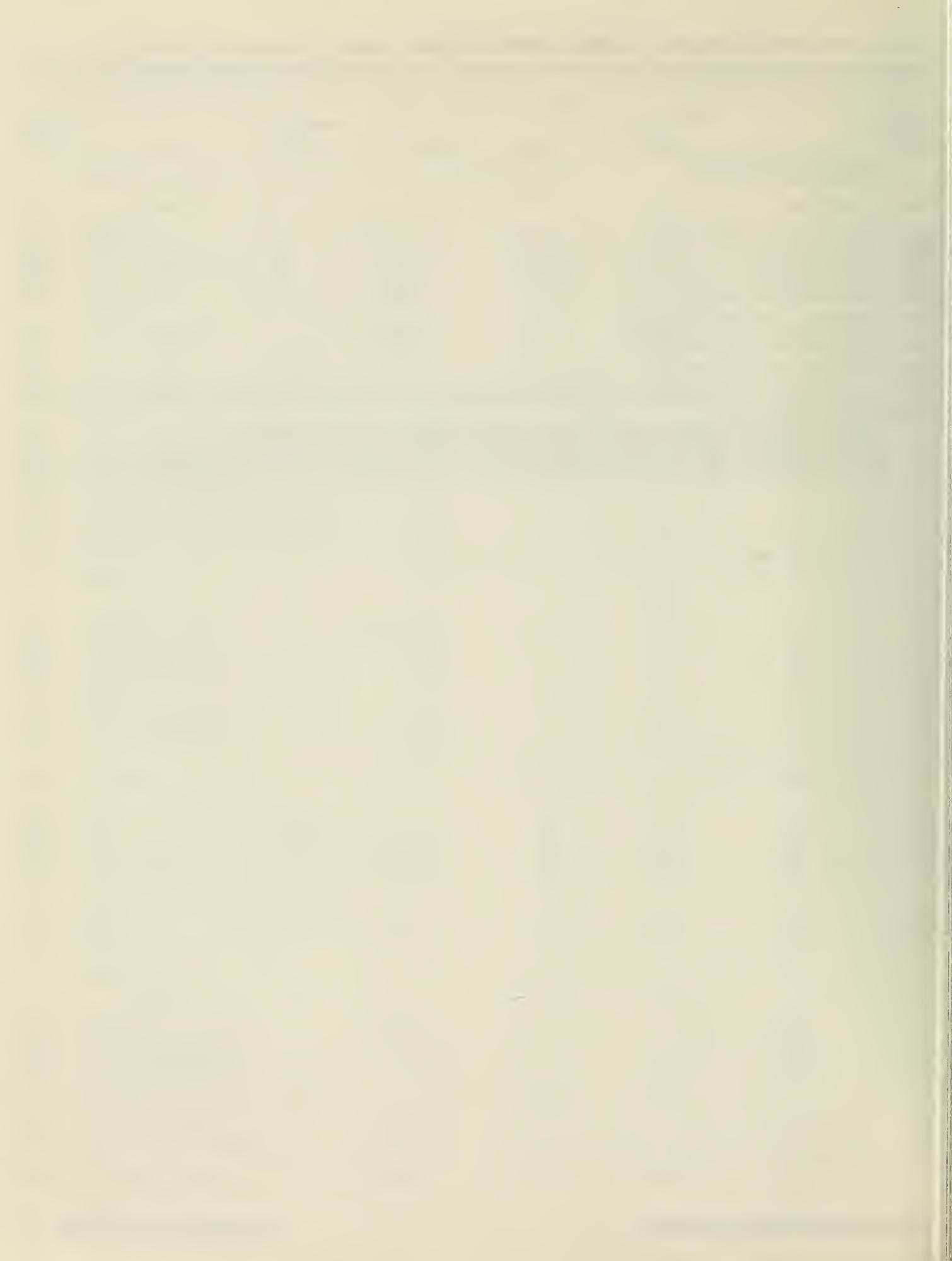
<sup>3</sup>For 1987, material codes 289900, 339915, 336005, 345001, and 242101 are combined with material code 970099 to avoid disclosing data for individual companies.

<sup>4</sup>For 1982, material codes 242101 and 282104 were combined with material code 970099 to avoid disclosing data for individual companies.

<sup>5</sup>For 1987, material codes 335007, 289900, 339915, 336005, 346310, 356218, and 308006 are included with material code 970099 to avoid disclosing data for individual companies.

<sup>6</sup>For 1987, material codes 289900, 339915, 346200, 242101, and 282104 are combined with material code 970099 to avoid disclosing data for individual companies.

<sup>7</sup>For 1982, material codes 356218, 356201, 242101, 282104, and 265001 were combined with material code 970099 to avoid disclosing data for individual companies.



# APPENDIX

## Scope and Coverage and Explanation of Terms

### GENERAL

The 1987 Census of Manufactures is the 32nd census of manufacturing establishments conducted in the United States. For 1987, it was conducted as part of the economic censuses, which included the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses, under authority of title 13 of the United States Code. Title 13 specifies that an economic census be conducted every 5 years to cover years ending in 2 and 7.

### SCOPE AND COVERAGE

#### Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. All manufacturing establishments with one paid employee or more at any time during the year are covered by the census of manufactures. Therefore, a company operating at more than one location is required to file a separate report for each location. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units which service manufacturing establishments of the same company. Where these auxiliary operations are conducted at the same location as the manufacturing operation, they are usually included in the report for the operating manufacturing establishment.

#### Use of Administrative Records

From a universe of approximately 350,000 manufacturing establishments in the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of the small establishment nonmail cases was done on an industry-by-industry basis. A variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. The cutoffs were selected so the administrative-record cases would account for approximately 3 percent or less of the value of shipments for the industry. These cutoffs were then adjusted so that all single-establishment companies with less than 5 employees were excluded from the mail canvass, while all establishments with more than 20 employees were included. Where establishments in the 5 to 20 employee size range were included in the mail canvass, an abbreviated census form was frequently used.

For these nonmail establishments, (and a small number of larger establishment whose reports were not received at the time the data were tabulated) data on employment, payroll, and receipts were obtained from administrative records of other government agencies rather than from census forms. The administrative-record information was then used in conjunction with industry averages to estimate the data for these establishments. The value of shipments and cost of materials were not distributed among specific products and materials but were included in the product and material "not specified by kind" (n.s.k.) categories.

### EXPLANATION OF TERMS

**Number of establishments and companies**—A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

**All employees**—Includes all full-time and part-time employees on the payrolls at any time during the year. Included are all persons on paid sick leave, paid holidays, and paid vacations. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average of those for midmonth payroll periods of March, May, August, and November.

**Production workers**—Includes workers up through the working-supervisor level engaged in fabricating, processing, assembling, inspecting, receiving, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial, guard services, product development, auxiliary production for plant's own use (e.g., power-plant), recordkeeping, and other closely associated services. Truckdrivers delivering ready-mixed concrete are also included in production workers.

**Other employees**—Includes nonproduction personnel, including those engaged in the following activities: supervision above working-supervisor level, sales (including driver/salespersons), sales delivery (truckdrivers and helpers), advertising, credit collection, installation and

servicing of own product, clerical and routine office functions, executive, purchasing, finance, legal, personnel (including cafeteria, etc.), professional, and technical employees.

**Payroll**—Includes the gross earnings for the "employees" defined above, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. Respondents were told that in reporting they could follow the definition of payrolls used for calculating the Federal withholding tax.

**Production-worker hours**—Covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave when the employee was not at the plant.

**Cost of materials**—Refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuels consumed, regardless of whether they were purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (a) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year; (b) electric energy purchased; (c) fuels consumed for heat, power, or generating electricity; (d) work done by others on materials or parts furnished by manufacturing establishments (contract work); and (e) products bought and resold in the same condition.

**Specific materials consumed (table 3)**—In addition to the total cost of materials which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. These inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which administrative records were used was estimated as "not specified by kind" (n.s.k.).

**Value of shipments and other receipts**—Generally refers to received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all

miscellaneous receipts such as receipts for contract work performed for others, installation and repair receipts, sale of scrap, and sale of products bought and resold without further processing. Included are all items made by or for the establishment from materials owned by it whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In a few industries, the value of production or value of work completed is used instead of value of shipments. These industries are identified in the introduction and are footnoted in table 1.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, that is, including not only the direct costs of production but also a reasonable proportion of "all other costs" (including company overhead and profit).

**Shipments or production of individual products (table 2)**—In the 1987 census, detailed shipment information was collected for approximately 11,000 individual products. These products are identified by a seven-digit code and are grouped into approximately 1,500 classes of products, which in turn are primary to 459 four-digit industries. Data at the five-digit product-class level have been collected each year as part of the annual survey of manufactures. Information at the seven-digit level, collected for many industries in the current industrial reports program, is not included in this table.

**Value added by manufacture**—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments for products manufactured plus receipts for services rendered. The result of this calculation is then adjusted by the addition of value added by merchandising operations (that is, the difference between the sales value and cost of merchandise sold without further manufacturing, processing, or assembly) plus the net change in finished goods and work-in-process inventories between the beginning and end of the year.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1), value added is adjusted only for the change in work-in-process inventories between the beginning and end of the year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

Value added avoids the duplication in the figure for value of shipments which results from the use of products of some establishments as materials by others. Value

added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

**Expenditures for new plant and equipment**—Establishments in operation and any known plants under construction were asked to report their expenditures for (a) permanent additions and major alterations to manufacturing establishments and (b) new machinery and equipment used for replacement and additions to plant capacity if they are of the type for which depreciation accounts are ordinarily maintained.

These totals exclude expenditures for used plant and equipment, expenditures for land, and cost of maintenance and repairs charged as current operating expenses. Data for used plant and equipment will be published in the final industry bulletin.

**End-of-year inventories**—Comprised of (a) finished products; (b) work-in-process; and (c) materials, supplies, fuels, etc. Beginning in 1982, respondents were asked to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method.

Therefore, 1982 through 1987 data for inventories are not strictly comparable to prior-year data.

**Specialization and coverage ratios**—An establishment is classified in a particular industry if its shipments of primary products of the industry exceed in value its shipments of the products of any other single industry. An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). The following ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in table 1 and data on product shipments shown in table 2.

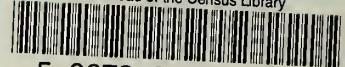
**Specialization ratio**—Represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

**Coverage ratio**—Represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments, wherever classified.





CB/Bureau of the Census Library



5 0673 01031344 6